DISCIPLINE: Minimum Desktop Hardware

Discipline Roadmap for: Desktop

Current	2 Years	5 Years
Baseline Environment	**Tactical Deployment**	**Strategic Direction**

Dell Pentium IV
Compaq
Gateway
Macintosh
HP
Intel **Compatible** Processor
Apple MacIntosh

Pentium IV compatible

Market Watch

Shared	Agency
	✓

Retirement Targets

Lower than Pentium III

Mainstream Platforms (must be supported)

Pentium IV or Higher

Containment Targets

Emerging Platforms

MacIntosh

Implications and Dependencies

– Cannot upgrade O/S and certain application software until hardware is upgraded/replaced

Roadmap Notes – State Procurement Office to establish best buying practices and vendors for PC purchases.
Minimum PC Configuration Reviewed Annually after Adoption by AOC

DISCIPLINE: Minimum Desktop Hardware (Cont'd)

Discipline Roadmap for: Desktop

- **Discipline Boundaries:**
  - ❑ These are required minima.
- **Discipline Minimum Standards:**

  Processor: Pentium IV Compatible   Memory: 512 MB RAM

  Storage: 80GB+ EIDE, CD/DVD±-R
- **Migration Considerations:**
  - ❑ Organizations should proactively migrate off of desktop hardware less than Pentium IV based on depreciation schedules and budget.
  - ❑ Hardware must be sufficient to support O/S and O/S application must be certified by vendor to be supported.
- **Exception Considerations:**
  - ❑ Specialized applications with specialized platforms need to be reviewed by AOC.
- **Miscellaneous Notes:**
  - ❑ None
- **Established Date**
  - ❑ March 24, 2004
- **Date Last Updated:**
  - ❑ April 22, 2006
- **Next Review Date:**
  - ❑ April 2007

DISCIPLINE: Minimum Laptop Hardware

Discipline Roadmap for: Laptop

Current	2 Years	5 Years
Baseline Environment	**Tactical Deployment**	**Strategic Direction**

Baseline Environment

Compaq Notepads
Notebook- Dell
Dell CPI
Dell Inspiron
Gateway
Hitachi
IBM ThinkPad
Apple MacIntosh

Tactical Deployment

Pentium IV compatible

Strategic Direction

Market Watch

Shared	Agency
	✓

Retirement Targets

Lower than Pentium III

Mainstream Platforms (must be supported)
Pentium IV or higher

Containment Targets

Emerging Platforms

MacIntosh

Implications and Dependencies

Cannot upgrade O/S and certain application software until hardware is upgraded/replaced.

Roadmap Notes –

Minimum PC configuration reviewed annually after adoption by AOC

DISCIPLINE: Minimum Laptop Hardware

Discipline Roadmap for: Laptop

- **Discipline Boundaries:**
  - All business laptops, does not include laptops used for special purposes. These are required minimums.
- **Discipline Minimum Standards:**

  Processor: Pentium IV Compatible   Memory: 512MB

  Storage: 40GB HD; CD-RW
- **Migration Considerations:**
  - Hardware must be sufficient to support O/S and O/S applications must be certified by vendor to be supported.
- **Exception Considerations:**
  - Special purpose laptops, e.g., machines used for maintenance or security or other special/unique application support do not fall under this standard and do not require an approved exception. If questions arise regarding whether a laptop falls under this exception, please contact the CIO Architecture Support Group.
- **Miscellaneous Notes:**
  - Consider wireless hardware impact and security.
- **Established Date**
  - March 24, 2004
- **Date Last Updated:**
  - April 22, 2006
- **Next Review Date:**
  - April 2007

DISCIPLINE: Client Operating Systems
Discipline Roadmap for: Client OS

Current	2 Years	5 Years
Baseline Environment	**Tactical Deployment**	**Strategic Direction**

Baseline Environment

Windows 2000
Windows 98
Windows 95
Windows NT
Windows XP
Apple Power Mac
DOS
Win3.x
OS/2

Tactical Deployment

Windows XP Professional
Windows Vista

Strategic Direction

Market Watch

Shared	Agency
	✓

Retirement Targets

DOS, OS/2, Win 95

Mainstream Platforms (must be supported)

Windows XP Professional

Containment Targets

Win2000, Win 98, Win ME, Win NT 3.x /4

Emerging Platforms

MacIntosh OS
Linux compatible

Implications and Dependencies
− Hardware/application compatibility for O/S, there is a direct correlation between Hardware and O/S upgrade with any significant hardware upgrades.

Roadmap Notes
− Note Win XP=Professional Version

- **Discipline Boundaries:**
  - All Desktop PC's that are used in routine business operations. Does not include specialized desktops.
- **Discipline Standards:**
  - Intel Compatible
- **Migration Considerations:**
  - Expected timelines for support discontinuity and budget constraints.
- **Exception Considerations:**
  - Exceptions will be driven by special applications.
- **Miscellaneous Notes:**
  - None
- **Established Date**
  - November 19, 2003
- **Date Last Updated:**
  - April 22, 2006
- **Next Review Date:**
  - April 2007

DISCIPLINE: Collaborative File Formats

Discipline Roadmap for: Collaborative File Formats

Current	2 Years	5 Years
Baseline Environment	**Tactical Deployment**	**Strategic Direction**

Baseline Environment

Hundreds of formats, including:

Word Processing: RTF, DOC (Word),
   DOC (WordPerfect), WRI

Spreadsheet: XLS, WKS, WBx

Database: DBF, DB , MDB

Presentation: PRS, PPT

Data Exchange: TXT, CSV

Graphics: TIFF, JPG, GIF, BMP, WMF,
   PCX, CDR, PSD, PNG, PDF, EPS, AI,
   DWG, DXF, ART

Sound: WAV, MP3, MIDI, CDA

Video: AVI, MPEG, DV, WMV, RM, ASF

Tactical Deployment

Word Processing: DOC (Word), RTF

Spreadsheet: XLS

Database: MDB

Presentation: PPT

Data Exchange: TXT, CSV, XML

Graphics: TIFF, JPG

Sound: WAV, MP3

Video: AVI, MPEG, WMV, SWF

Forms/Document Display: PDF, XML

Strategic Direction

Market Watch

Shared	Agency
	✓

Retirement Targets

File formats used/generated only by
  software targeted for retirement

Mainstream Platforms

File formats generated by supported software packages (e.g., Office XP)

Containment Targets

File formats generated/used only by software currently under containment

Emerging Platforms

Implications and Dependencies

Availability of programming support may dictate moving some formats from "containment" to "retirement" status.

Simplifying file formats is critical to reducing training and support requirements and enhancing workgroup and enterprise productivity

---

Roadmap Notes –

Standard to be reviewed annually after adoption by AOC.

DISCIPLINE: Collaborative File Formats
Discipline Roadmap for: Collaborative File Formats

- **Discipline Boundaries:**
  - File formats for dissemination or modification of information with internal and external users.
- **Migration Considerations:**
  - Documents/spreadsheets/etc. with extensive internal programming may require reprogramming as part of the migration process.
  - Appropriate "viewers" may need to be made available via internal and external web sites for those without software to read standard file formats in native mode.
- **Exception Considerations:**
  - Some activities may require non-standard formats to accommodate special-purpose needs (e.g., architectural drawings, mapping functions).
- **Miscellaneous Notes:**
  - None
- **Established Date**
  - April 28, 2004
- **Date Last Updated:**
  - April 22, 2006
- **Next Review Date:**
  - April 2007

DISCIPLINE: Dumb Terminals
Discipline Roadmap for: Dumb Terminals

Current	2 Years	5 Years
Baseline Environment	**Tactical Deployment**	**Strategic Direction**

Baseline Environment:

Mainframe 3270
DEC VT 220, 320, 420
MTX (Memorex Telex)
Unix VT100
TN 3270 (freeware) ————————————————→
PC Emulators

Strategic Direction:

Eliminate

	Shared	Agency
		✓

Retirement Targets

Mainstream Platforms (must be supported)

TN 3270

Containment Targets

Mainframe 3270; DEC VT 220, 320, 420; Unix VT100; MTX

Emerging Platforms

Implications and Dependencies-

All State facilities need to be IP network connected.

Roadmap Notes

DISCIPLINE: Dumb Terminals (Cont'd)

Discipline Roadmap for: Dumb Terminals

- **Discipline Boundaries:**
  - ❑ Non PC based end user data entry and display devices
- **Discipline Standards:**
  - ❑ TN 3270
- **Migration Considerations:**

- **Exception Considerations:**

- **Miscellaneous Notes:**
  - ❑ None
- **Established Date**
  - ❑ March 24, 2004
- **Date Last Updated:**
  - ❑ April 22, 2006
- **Next Review Date:**
  - ❑ April 2007

DISCIPLINE: Personal Digital Assistant Operating Systems
Discipline Roadmap for: Operating System for PDAs

Current	2 Years	5 Years
Baseline Environment	**Tactical Deployment**	**Strategic Direction**

Palm OS
Windows for Pocket PC
Rim Blackberry

Market watch

	Shared	Agency
		✓

Retirement Targets	**Mainstream Platforms**
	Palm OS, Windows for Pocket PC, Rim Blackberry

Containment Targets	**Emerging Platforms**
	Market watch

Implications and Dependencies

PDA Operating system must exchange files with standard desktop operating system.

Roadmap Notes

Need research into who and where personal devices are being used.

DISCIPLINE: Personal Digital Assistant Operating Systems

Discipline Roadmap for: Operating System for PDAs

- **Discipline Boundaries:**
  - Two basic operating systems dominate the handheld personal digital assistants (PDAs) uses in South Carolina government; Palm OS and Windows for Pocket PC.
  - Various local requirements for feature, service, and compatibility to outside partners lead to this need for flexibility in platform choice. One such example is the use of mobile telephony incorporated in PDA devices. Not all voice carriers recognize and utilize all PDA devices that have such capabilities. Collaboration and information sharing between agency and private sector parties is yet another.

- **Discipline Standards:**
  - While the Windows for Pocket PC user and developer market continues to grow rapidly, there remains justification and need for the use of industry standard Palm OS products in some areas. Therefore, it is the position of the Presentations Sub-domain committee that no one PDA platform be emphasized across the board at the present time.
  - However, this fast and ever-changing technology should be monitored and updated as trends, needs, and advancements take place.

- **Migration Considerations:**
  - This standard should not require any migrations except release to release as dictated by the vendors and devices.

- **Exception Considerations:**
  - None

- **Miscellaneous Notes:**
  - None

- **Established Date**
  - April 28, 2004

- **Date Last Updated:**
  - April 27, 2005

- **Next Review Date:**
  - April 2006

DISCIPLINE: Desktop Productivity Tools

Discipline Roadmap for: Desktop Productivity Tools

Current	2 Years	5 Years
Baseline Environment	**Tactical Deployment**	**Strategic Direction**

Baseline Environment

Office 97 Standard/Professional
Office 2000 Standard/Professional
Office XP Standard/Professional
WordPerfect Office
Lotus SmartSuite
Star Office
Legacy Word Processing/
   Spreadsheet/Presentation Packages

Tactical Deployment

Office XP Standard/Professional
Office 2003 Standard/Professional
Open Office 2.0

Strategic Direction

Market Watch

Shared	Agency
	✓

Retirement Targets

Legacy Packages
Suites Incompatible with Standard OS

Mainstream Platforms

Office XP, Office 2003, Open Office 2.0

Containment Targets

WordPerfect Office/Lotus SmartSuite/Star Office/Office 2000 and earlier

Emerging Platforms

Office Services

Implications and Dependencies
Future availability of vendor support may dictate moving some packages from "containment" to "retirement" status.
Backward compatibility and ability to read older formats are critical.

Roadmap Notes –
Standard to be reviewed annually after adoption by AOC.

DISCIPLINE: Desktop Productivity Tools
Discipline Roadmap for: Desktop Productivity Tools

- **Discipline Boundaries:**
  - ❏ Office productivity suites for general use.
- **Migration Considerations:**
  - ❏ Hardware and operating system may need to be upgraded to standards before migration.
  - ❏ Documents/spreadsheets/etc. with extensive internal programming may require revision as part of the migration process.
- **Exception Considerations:**
  - ❏ Users heavily involved with programming or end-user support may require Developer versions of standard suites and/or non-supported packages.
- **Miscellaneous Notes:**
  - ❏ None
- **Established Date**
  - ❏ April 28, 2004
- **Date Last Updated:**
  - ❏ April 22, 2006
- **Next Review Date:**
  - ❏ April 2007

DISCIPLINE: Web Accessibility
Discipline Roadmap for: Web Accessibility

Current	2 Years	5 Years
Baseline Environment	**Tactical Deployment**	**Strategic Direction**

Baseline Environment

Initial efforts to date have focused on on-going:
- Research
- Education
- Training
- Collaboration
- Agency Partnerships

Tactical Deployment

Minimal Requirements:
Section 508 Standards

Best practices:
W3C-WAI Guidelines

Strategic Direction

The standards and guidelines should be reviewed annually to ensure agency Web sites are in compliance with the latest revisions to state and federal laws,

Shared	Agency
✓	

Retirement Targets	**Mainstream Platforms**
Not Applicable	Not Applicable

Containment Targets	**Emerging Platforms**
Not Applicable	Not Applicable

Implications and Dependencies

South Carolina state government Web sites shall be designed to be accessible, so that people with disabilities have access to online information, data, and services comparable to that accorded individuals who do not have disabilities.

Roadmap Notes –

For more details and information, please reference the Web Accessibility Policy listed on the SC Enterprise Architecture website under 'Information' & 'Documents/Forms' at www.cio.sc.gov

DISCIPLINE: Web Accessibility
Discipline Roadmap for: Web Accessibility

- **Discipline Boundaries:**
  - ❑ This standard applies to internal and external accessible websites and applications.
- **Migration Considerations:**
  - ❑ As soon as possible, each agency should conduct a self-assessment of its web presence, develop and maintain a written plan.
  - ❑ Achieve minimum requirements (Section 508 standards) by July 2006. Best practices (W3C-WAI Guidelines) are encouraged.
- **Exception Considerations:**
  - ❑ It is not required that all pages be retrofitted. Excluded are: legacy pages that do not require content update and instances in which undue burden can be proven.
  - ❑ Each agency shall establish a mechanism for collecting and responding within a reasonable length of time to comments, complaints and suggestions about accessibility of it Web presence.
- **Miscellaneous Notes:**
  - ❑ To provide assistance to agencies, the South Carolina Web Accessibility Workgroup of the Assistive Technology Advisory Committee (ATAC) shall create an official State of South Carolina Accessibility Web site (www.access-sc.org) to provide a list of resources and training opportunities.
- **Established Date:**
  - ❑ June 23, 2004
- **Date Last Updated:**
  - ❑ April 22, 2006
- **Next Review Date:**
  - ❑ April 2007

DISCIPLINE: Assistive Technology
Discipline Roadmap for: Assistive Technology

Current	2 Years	5 Years
Baseline Environment	**Tactical Deployment**	**Strategic Direction**
Baseline environment was not collected.	Use 'Best Practices' to select the technologies that works best for the person with the disability.	

	Shared	Agency
		✓

Retirement Targets	**Mainstream Platforms**
Not Applicable	Not Applicable

Containment Targets	**Emerging Platforms**
Not Applicable	

Implications and Dependencies

Use latest software version and install updates as available. The end-user, the person with the disability, should play a key role in determining what works best.

Roadmap Notes

DISCIPLINE: Assistive Technology
Discipline Roadmap for: Assistive Technology

- **Discipline Boundaries:**
  - ❑ General desktop office automation tools.
- **Discipline Standards:**
  - ❑ Please review 'Best Practices' on the SCEA website.
- **Migration Considerations:**
  - ❑ Before ordering additional software, review built-in accessibility options.

- **Exception Considerations:**
  - ❑ None
- **Miscellaneous Notes:**
  - ❑ The Presentation Services Domain Subcommittee worked with the South Carolina Assistive Technology Advisory Committee to determine 'Best Practices' for this technology. 'Best Practices' is available on the SCEA website or can be obtained from the Architecture Support Group at the CIO.
- **Established:**
  - ❑ September 2004
- **Date Last Updated:**
  - ❑ April 22, 2006
- **Next Review Date:**
  - ❑ April 2007

Web Site Accessibility Policy and Transition Plan for the State of South Carolina

I.   Policy

The State of South Carolina is committed to providing accessibility to state government Internet-based resources.

South Carolina state government Web sites shall be designed to be accessible, so that people with disabilities have access to online information, data, and services comparable to that accorded individuals who do not have disabilities.

II.   Guidelines

Following the Guidelines (described in Parts A and B below) and the Transition Plan (outlined in Part III) will assist a state agency in ensuring that its Web presence is accessible to the widest possible range of users.

Implementation of the Minimal Requirements in Part A satisfies basic accessibility requirements for state government Web pages. In addition, agencies are encouraged to go beyond the minimum in making Web pages accessible by following the Best Practices in Part B.

A. Minimal Requirements

The State of South Carolina shall follow the standards established under Section 508 of the Rehabilitation Act of 1973, amended 1998 by the Work Force Investment Act (Section 1194.22 and its subsequent amendments), as its minimal requirements for Web accessibility. [See Appendix 1.]

B. Best Practices

It is recommended that agencies also follow the Web Content Accessibility Guidelines established by the World Wide Web Consortium's Web Accessibility Initiative (W3C-WAI) that are not addressed in Section 508. [See Appendix 2.]

III.   Transition Plan

A. Self-Assessment

Each agency shall review the current status of accessibility for its Web presence**.**

This review does not require an agency to evaluate each page of a site, but instead requires the agency to appraise the overall accessibility of its Web presence.

As a starting point, it is suggested that each agency evaluate the accessibility of the most frequently visited pages and a random sampling of other pages.

B. Plan

Each agency shall develop, keep on file, and implement a written plan for making its Internet Web presence accessible as well as a plan for making its Intranet Web presence accessible. The planning documents shall include provisions for necessary staff training.

Each agency head shall appoint an individual with sufficient authority and resources to be responsible for overseeing the implementation of the agency's plans.

C. Deadline

The deadline for achieving accessibility on Internet sites, as outlined in Section D, shall be no later than two years from the passage of the policy by the Architecture Oversight Committee (AOC) plus a review period of 21 days from the posting of this policy on the AOC Web site. (The deadline for Internet site compliance is July 21, 2006.)

The deadline for achieving Intranet site accessibility, as outlined in Section D, shall be no later than 2 years after the Internet site deadline. (The deadline for compliance is July 21, 2008.)

D. Order of Implementation

Each agency shall implement Web site accessibility in the following order:

1. Main entry pages, home pages, top-level pages, most frequently visited pages, and pages that provide mission-critical agency services.
2. Front-end user interfaces that provide access to agency applications.
3. All new pages and interfaces created after the deadline.
4. Legacy pages and interfaces updated after the deadline.

E. Exceptions

It is not required that all pages be retrofitted.

Expressly excluded are:

1. Legacy pages that do not require content updates.
2. Legacy front-end user interfaces that do not require content updates.
3. Instances in which undue burden can be proven.

However, if an individual with a disability requests specific information published in an inaccessible section of a Web site, each agency shall, within a reasonable length of time, provide the requested information or data in a format accessible to that individual or by an alternative means of access that allows the individual to use the information and data.

F. Feedback Mechanism

Each agency shall establish a mechanism for collecting and responding within a reasonable length of time to comments, complaints, and suggestions about accessibility of its Web presence.

G. Resources

Recognizing that agencies may need assistance in carrying out this policy and plan, the South Carolina Web Accessibility Workgroup of the Assistive Technology Advisory Committee (ATAC) shall create an official State of South Carolina Accessibility Web site to provide a list of resources and training opportunities, and recommended topics for training.

IV.   Definitions

A. Access Board

The Access Board is an independent Federal agency devoted to accessibility for people with disabilities. Under Section 508 of the Rehabilitation Act Amendments, the Access Board published standards for electronic and information technology, including Web access.

B. Architecture Oversight Committee (AOC)

The charge of the Architecture Oversight Committee (AOC) is to advise the State Budget and Control Board's Division of the State Chief Information Officer on how the State might best use technology to become a recognized leader in delivering cost effective services desired by citizens, businesses, and government organizations, while maximizing constituent participation in the governmental process.

C. Assistive Technology Advisory Committee (ATAC)

The role of the South Carolina Assistive Technology Advisory Committee is to assist State government in meeting its obligation to provide access to government information for all South Carolinians.

D. Agency
See "State Agency."

E. Disability

The term "disability" with respect to an individual as defined by the Americans with Disabilities Act (ADA) means:

1. A physical or mental impairment that substantially limits one or more of the major life activities of such individual. Major life activities include: seeing, hearing, speaking, walking, breathing, performing manual tasks, learning, caring for oneself, and working;
2. A record of such an impairment; or
3. Being regarded as having such an impairment.

If an individual meets any one of these three tests, he or she is considered to be an individual with a disability.

F. Legacy Pages

Web pages created prior to the effective date of this policy.

G. State Agency

Each department, office, board, bureau, commission, and other unit of the executive, legislative, and judicial branches of state government, including public four- and two-year colleges and universities.

H. Undue Burden

Undue burden means significant difficulty or expense. In determining whether an action would result in an undue burden, an agency shall consider all agency resources available to the agency or components for which the product is being developed, procured, maintained, or used.

I. Web Presence

While Web presence is often used as a synonym for the term Web site, Web presence further expresses the idea of a virtual presentation in "cyberspace."

Web presence includes anything associated with an agency's official Web site(s), whether reached through the Internet or an intranet, extranet, or courseware.

J. Web Accessibility Initiative (WAI)

The WAI, in coordination with organizations around the world, pursues accessibility of the Web through five primary areas of work: technology, guidelines, tools, education and outreach, and research and development. This initiative is a subset of W3C.

K. World Wide Web Consortium (W3C)

The W3C is an international industry consortium of approximately 500 organizations. W3C was created to establish Web standards and lead the Web to its full potential by developing common protocols that promote its evolution and ensure its interoperability.

Appendix 1 – Section 508 Standards for Web Accessibility

Section 508 of the Rehabilitation Act of 1973, amended 1998 by the Work Force Investment Act sets standards for hardware, software, and Web accessibility. The Section 508 Web accessibility standards are listed below.

§ 1194.22 Web-based intranet and internet information and applications.
(a) A text equivalent for every non-text element shall be provided (e.g., via "alt", "longdesc", or in element content).
(b) Equivalent alternatives for any multimedia presentation shall be synchronized with the presentation.
(c) Web pages shall be designed so that all information conveyed with color is also available without color, for example from context or markup.
(d) Documents shall be organized so they are readable without requiring an associated style sheet.
(e) Redundant text links shall be provided for each active region of a server-side image map.
(f) Client-side image maps shall be provided instead of server-side image maps except where the regions cannot be defined with an available geometric shape.
(g) Row and column headers shall be identified for data tables.
(h) Markup shall be used to associate data cells and header cells for data tables that have two or more logical levels of row or column headers.
(i) Frames shall be titled with text that facilitates frame identification and navigation.
(j) Pages shall be designed to avoid causing the screen to flicker with a frequency greater than 2 Hz and lower than 55 Hz.
(k) A text-only page, with equivalent information or functionality, shall be provided to make a web site comply with the provisions of this part, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes.
(l) When pages utilize scripting languages to display content, or to create interface elements, the information provided by the script shall be identified with functional text that can be read by assistive technology.
(m) When a web page requires that an applet, plug-in or other application be present on the client system to interpret page content, the page must provide a link to a plug-in or applet that complies with §1194.21(a) through (l).
(n) When electronic forms are designed to be completed on-line, the form shall allow people using assistive technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues.
(o) A method shall be provided that permits users to skip repetitive navigation links.
(p) When a timed response is required, the user shall be alerted and given sufficient time to indicate more time is required.

Note to §1194.22: 1. The Board interprets paragraphs (a) through (k) of this section as consistent with the following priority 1 Checkpoints of the Web Content Accessibility Guidelines 1.0 (WCAG 1.0) (May 5, 1999) published by the Web Accessibility Initiative of the World Wide Web Consortium:

Section 1194.22 Paragraph	WCAG 1.0 Checkpoint
(a)	1.1
(b)	1.4
(c)	2.1
(d)	6.1
(e)	1.2
(f)	9.1
(g)	5.1
(h)	5.2
(i)	12.1
(j)	7.1
(k)	11.4

2. Paragraphs (l), (m), (n), (o), and (p) of this section are different from WCAG 1.0. Web pages that conform to WCAG 1.0, level A (i.e., all priority 1 checkpoints) must also meet paragraphs (l), (m), (n), (o), and (p) of this section to comply with this section. WCAG 1.0 is available at http://www.w3.org/TR/1999/WAI-WEBCONTENT-19990505.

Appendix 2 – W3C-WAI Web Accessibility Guidelines

The World Wide Web Consortium's Web Accessibility Initiative (W3C-WAI) developed guidelines for Web accessibility. The current guidelines are the Web Content Accessibility Guidelines 1.0.

A new Working Draft of Web Content Accessibility Guidelines 2.0 has been developed and is under review.

Assistive Technology – Best Practices

The specific need for assistive technology is unique to the individual. "Trial-and-error may be required to find a set of appropriate tools and techniques. The end user—the person with a disability—should play a key role in determining what works best" (Burgstahler & Comden, 2002).

Disability	AT/Accommodations	Products/Vendors	Comments
Vision Impairment	High Contrast	MS Windows Accessibility Options	Allows user to change colors and fonts for easy reading (start-settings-control panel-accessibility options).
	Cursor Options	MS Windows Accessibility Options	Changes the speed that the cursor blinks and the width of the cursor (start-settings-control panel-accessibility options).
	Toggle Keys	MS Windows Accessibility Options	Produces a tone when pressing CAPS LOCK, NUM LOCK, SCROLL LOCK (start-settings-control panel-accessibility options).
	Narrator	MS Windows Accessibility Options (MS Windows 2000 or higher)	Reads aloud menu commands, dialog box and more (start-programs-accessories-accessibility).
	Magnifier	MS Windows Accessibility Options (MS Windows 98 or higher)	Provides variable magnification settings and allows user to invert color (start-programs-accessories-accessibility).
	Large Screen Fonts	MS Windows Display Settings	Provides large fonts on the screen (start-control panel-display-appearance).
Vision Impairment (continued)	Large Monitor (19" or larger)	Retail store (Best Buy, Circuit City, etc.) or designated procurement manufacturer	

	Large Print Keyboard Key Labels	Zoom Caps/maxiaids.com, donjohnston.com Large Print Keytop Labels/infogrip.com	Labels for top of keys on keyboard. Includes all alpha-numeric characters. Available in various color combinations.
	Glare Guard	Retail store (Office Max, Staples, etc.) or designated procurement manufacturer	A screen placed in front of a computer display screen which reduces glare and helps the user avoid eyestrain and enhances readability.
	Large Cursor	Biggy/rjcooper.com	Provides selection of ultra-visible cursors that work within any software.
	Screen Magnification Software	Zoom Text Xtra Level 1/aisquared.com, infogrip.com MAGic® Screen Magnifier-No Speech/ infogrip.com, freedomscientific.com BigShot/aisquared.com	Full and partial screen enlargement.
	Screen Magnification Software with Screen Reader	Zoom Text Xtra Level 2/aisquared.com, infogrip.com	Full and partial screen enlargement with screen reader.
		MAGic® Screen Magnifier-With Speech/ infogrip.com	Limited screen reader capability. Compatible with screen reader software (i.e. JAWS® for Windows)
	High Contrast Colors	MS Windows Display Settings	Allows selection of high contrast colors to enhance screen readability (start-control panel-display-appearance).
	Colors Compatible for People with Color Blindness	MS Windows Display Settings	Allows selection of various colors to enhance screen readability (start-control panel-display-appearance).
Blindness	Screen Reader	JAWS® for Windows/ GSTSdesigns.com, freedomscientific.com, maxiaids.com	Makes documents, internet and commands audible. JAWS® has output to refreshable Braille displays.

		WYNN™/freedomscientific.com, donjohnston.com, Key Technologies, Inc.	
	OCR (Scanner)	Retail store (Office Max, Staples, etc.) or designated procurement manufacturer	Reads text from paper and translates into a computer document.
	Braille Printer	Braille Blazer/freedomscientific.com	Prints Braille on many sizes of Braille paper, plastic labels and even index cards. Internal speech synthesizer that allows quick and simple configuration.
	Braille Keytops for Keyboard	Braille Keytop Labels/maxiaids.com	Provides Braille stickers for application to surface of keyboard keys.
	Headphones	Retail store (Office Max, Staples, etc.) or designated procurement manufacturer	Allows use of auditory features without disturbing others nearby.
Deafness/ Hearing Impairment	Sound Sentry	MS Windows Accessibility Options	Provides visual warnings when your system makes a sound (start-settings-control panel-accessibility options).
	Show Sounds	MS Windows Accessibility Options	Allows programs to show captions for the speech and sounds they make (start-settings-control panel-accessibility options).
Deafblind	Refreshable Braille Display	Focus Braille Displays/ freedomscientific.com, ALVA Satellite Braille Displays/ alvabraille.com	Displays Braille characters by means of raising the dots through holes in a flat surface.
Mobility Impairment	Computer Location Accessible for Wheelchairs		Accommodates a wheelchair for access to the monitor, keyboard and mouse.

	Adjustable Computer Workstation	Accessible Computer Station/ dbhattachments.com	Accommodates a wheelchair for access to the monitor, keyboard and mouse.
	Wireless Keyboard and Mouse	Logitech Cordless/logitech.com Retail store (Best Buy, Circuit City, etc.) or designated procurement manufacturer.	Allows computer access from a distance.
Manual Dexterity Impairment	Adjustable Computer Workstation	Accessible Computer Station/dbhattachments.com	Accommodates the wheelchair for access to the monitor, keyboard and mouse.
	Ergonomic Chair	Retail store (Office Max, Staples, etc.) or designated procurement manufacturer	Facilitates correct positioning to reduce fatigue and facilitate access.
	Foot Rest	Adjustable Foot Rest or Footrester/ infogrip.com	Redistributes body weight to decrease strain and fatigue on legs, back and neck.
	Keyguard for Keyboard	turningpointtechnology.com, techable.org	Maximizes physical access to accurately target keys on the keyboard. Makes customized keyguards.
	Trackball Mouse	Retail store (Best Buy, Circuit City, etc.) or designated procurement manufacturer. Penny & Giles Roller Plus Trackball/ GSTSdesigns.com, infogrip.com, donjohnston.com, dunamisinc.com, Key Technologies, Inc.	Includes buttons that support right and left click, double click, drag lock, horizontal and vertical lock, and cursor speed control.
	Orbit Optical Trackball Mouse	Kensington Orbit Optical Trackball mouse/kensington.com	Allows the user to control the cursor with a simple touch of the finger.
Manual Dexterity Impairment	Joystick Mouse Emulator	Retail store (Best Buy, Circuit City, etc.) or designated procurement manufacturer. Penny & Giles Roller Plus Joystick/	Includes buttons that support right and left click, double click, drag lock, horizontal and vertical lock, and cursor speed control.

(continued)		GSTSdesigns.com, infogrip.com, donjohnston.com, dunamisinc.com, Key Technologies, Inc.	Roller Plus products include a key guard to help users isolate the buttons.
	Alternative Keyboard	Expanded keyboard with keyguard: Big Keys/bigkeys.com, dunamisinc.com, Key Technologies, Inc. Intellikeys ® /intellitools.com, dunamisinc.com, Key Technologies, Inc.	Includes simplified keyboard with large keys. QWERTY or alphabetized key arrangements are available.
		Ergonomic keyboards: Retail store (Best Buy, Circuit City, etc.), designated procurement manufacturer, or infogrip.com, maltron.com	Helps prevent cumulative trauma disorders. Some models have flexibility to accommodate specific disabilities.
		Mini keyboards: tashinc.com, GSTSdesigns.com	Allows access with minimal movement. Can control both keyboard and mouse functions. Can be used with mousestick or head pointer.
	One-Handed Typing	Half-Qwerty Typing Software/half-qwerty.com	Facilitates the transfer of two-handed typing skill to the one-handed condition. Typing is performed on a standard keyboard.
		Maltron Single-Handed Keyboard/maltron.com Bat Keyboard/infogrip.com	Replicates all the functions of a full-size keyboard, but with greater efficiency and convenience. Keyboard arrangement minimizes finger movement.
	Arm and Wrist Supports	Articulating Arm Supports/ergopages Ergorest Arm Supports/infogrip.com	Provides comfortable arm, shoulder and neck support with unrestricted motion. Muscle tension in the neck and shoulders can be significantly reduced.
Manual Dexterity Impairment	Touch Monitor	Key Technologies, Inc., Keytec, Inc./magictouch.com	Allows the user to make selections, move objects, and pull down menus with the touch of a finger on the monitor screen.

(continued)	Touch Window	infogrip.com, dunamisinc.com	
			Attaches to a computer monitor. Allows the user to make selections, move objects, pull down menus with the touch of a finger.
	E Z Keys	Key Technologies, Inc., Words +/words-plus.com	Provides text-based voice output with word prediction. Stores user-made phrases. All access modes.
	Sticky Keys	MS Windows Accessibility Options	Allows one-handed typists to use SHIFT, CTL, ALT keys (start-settings-control panel-accessibility options).
	Filter Keys	MS Windows Accessibility Options	Ignores brief or repeated key strokes or slows the repeat rate (start-settings-control panel-accessibility options).
	Mouse Keys	MS Windows Accessibility Options	Uses the numeric keypad to control the movement of the cursor (start-settings-control panel-accessibility options).
	Word Prediction Software	Co:Writer®/donjohnston.com E Z Keys™ for Windows/ Key Technologies, Inc., Words +/words-plus.com	Predicts the word you are typing and the next word based on word frequency and context. May also include features such as spell check, speech synthesis, and hotkeys for frequently used words.
	Switches	Tash/tashinc.com, Ablenet/ablenet.com, GSTSdesigns.com, Key Technologies, Inc.	Allows user to access a computer with a push of various body parts against a switch surface.
Lack of Manual Dexterity	Head/Chin Pointer	zygo-usa.com, allegromedical.com	Attaches pointer to head with straps.
	Electronic Pointing Device	Head Mouse® Extreme/orin.com	

			Replaces a standard computer mouse for people who cannot use their hands. The wireless sensing technology employs infrared light to track the user's head movements.
	Mouthstick	mouthstick.net	Allows user to type or manipulate items by using a stick controlled by mouth.
	Typing Aid or Typing Pointer	Typing Aid/westons.com, activeforever.com, secureic.getontech.com	Straps to hand. Extending wand strikes keys.
	Foot Mouse	No Hands Mouse/abilityhub.com, I/O Foot Mouse/iotest.net	Eliminates wasteful, repetitive "keyboard-to-mouse" hand movements.
	Voice Input Software	Dragon Naturally Speaking/ scansoft.com, GSTSdesigns.com, maxiaids.com	Turns speech into text. The user can create documents, enter data, launch applications, send e-mail, complete forms, and browse the Web. Various editions available based on profession and needs. Training required.
	On-Screen Keyboard	MS Windows Accessibility Options (MS Windows 2000 or higher)	Allows users to mouse click, hover, or use joystick to select key (start - programs - accessories - accessibility).
		Softtype/orin.com, GSTSdesigns.com	Integrates AutoClick™ and Dragger™ for performing clicking functions by dwell selection, multiple keyboard layouts, word completion with customizable word list, and excellent companion for HeadMouse® or other mouse emulators.
Lack of Manual Dexterity	Microphone	Parrott Talk Pro USB/GSTSdesigns.com	Provides high quality voice input for maximum accuracy with use of voice-to-text

(continued)			software (i.e. Dragon Naturally Speaking).
Vision and Manual Dexterity Impairment	Middle Software	Jaw Bone/GSTSdesigns.com, maxiaids.com, synapseadaptive.com	Allows Dragon Naturally Speaking and Jaws® to work together.
	Screen Magnification Software with Screen Reader	Zoom Text Xtra Level 2/aisquared.com, infogrip.com	Provides full and partial screen enlargement with screen reader.
Cognitive impairment	Text to Voice Software	Wynn™/freedomscientific.com, Key Technologies, Inc. Kurzweil/kurzweiledu.com	Adds auditory component to written material to facilitate understanding.
	Language at the Third Grade Level	Microsoft Word Options	Includes a Flesch-Kincaid readability grade level, which is shown in the summary after spell check is completed (In Microsoft Word document: tools-options-spelling/grammar-check "readability statistics").

- Before ordering additional software, review built-in accessibility options. See Accessibility Wizard (MS Windows 2000 or higher: start - programs - accessories - accessibility).
- Use the latest software version and install updates as available.
- Software that includes text to speech features (ex.: Zoom Text 2) may not work while JAWS® is active.
- Dragon Naturally Speaking dominates the sound card for its sole use; therefore, the sound feature may not be available in other software programs.

Reference

Burgstahler, S. & Comden, D. (2002). Working together: Computer technology and people with mobility & sensory impairments. Exceptional Parent Magazine, *p. 36.*

For further information, or consultation, call the South Carolina Assistive Technology Project, Evelyn Evans, Director, (803) 935-5263, www.sc.edu/scatp.